

distributing the solvent on a wafer surface; and
upon distributing the solvent, distributing the photo resist solution on the wafer surface.

19. (Twice Amended) An apparatus, comprising:

a solvent dispense head in fluid communication with a source of a photo resist solution and in fluid communication with a solvent source containing a solvent that includes diacetone alcohol and aliphatic ester, wherein a ratio of the diacetone alcohol and aliphatic ester ranges between 10% ester and 90% alcohol to 30% ester and 70% alcohol; and

a rotatable wafer-holding mechanism; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the solvent on a wafer surface;

actuating the rotatable wafer-holding mechanism to spin the wafer until the solvent is distributed across the wafer surface;

upon distributing the solvent, dispensing the photo resist solution on the wafer surface; and

actuating the rotatable wafer-holding mechanism to spin the wafer until the photo resist solution is distributed across the wafer surface.

22. (Twice Amended) An apparatus, comprising:

a solvent dispense head in fluid communication with a source of a photo resist solution and in fluid communication with a solvent source containing a solvent that includes diacetone alcohol and aliphatic ester, wherein the solvent head includes:

a first nozzle directed at the edge and sides of the wafer;

a second nozzle directed at the back of the wafer; and

a third nozzle directed at the center of the wafer; and

a rotatable wafer-holding mechanism; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the solvent on a wafer surface, including dispensing the solvent from the third nozzle;

actuating the rotatable wafer-holding mechanism to spin the wafer until the solvent is distributed across the wafer surface;

upon distributing the solvent, dispensing the photo resist solution on the wafer surface;

upon distributing the photo resist material, dispensing the solvent from the first nozzle for edge bead removal and dispensing the solvent from the second nozzle for cleaning the back of the wafer; and

actuating the rotatable wafer-holding mechanism to spin the wafer until the photo resist solution is distributed across the wafer surface.

24. (Twice Amended) An apparatus, comprising:

a solvent dispense head in fluid communication with a source of a photo resist solution and further in fluid communication with a solvent source containing a solvent that includes diacetone alcohol, wherein the solvent dispense head includes:

a first nozzle in fluid communication with the source of the photo resist solution, the first nozzle being directed at a wafer edge and a wafer side;

a second nozzle in fluid communication with the source of the photo resist solution, the second nozzle being directed at a wafer back surface; and

a third nozzle in fluid communication with the solvent source, the third nozzle being directed at a center of a wafer top surface; and

a rotatable wafer-holding mechanism; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

distributing the solvent on a wafer surface using the third nozzle; and

upon distributing the solvent, distributing the photo resist solution on the wafer surface using the first and second nozzles.

28. (Twice Amended) An apparatus, comprising:

a rotatable base for holding a wafer;

a solvent dispense head in fluid communication with a source of a photo resist solution and in fluid communication with a solvent source containing a solvent that includes diacetone alcohol, the solvent dispense head including:

a first nozzle in fluid communication with the source of the photo resist solution

and directed at the top of the wafer;

a second nozzle in fluid communication with the source of the photo resist solution and directed at the back of the wafer; and

a third nozzle in fluid communication with the solvent source directed at the center of the wafer;

solenoids for controlling flow of the photo resist solution and the solvent through the solvent dispense head; and

a logic control unit coupled to the solenoids and [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the solvent on a wafer surface;

spinning the wafer on the rotatable base until the solvent is distributed across the wafer surface;

dispensing the photo resist solution on the wafer; and

spinning the wafer until the photo resist solution is distributed across the wafer surface.

32. (Twice Amended) An apparatus, comprising:

a rotatable base for holding a wafer;

a solvent dispense head, including:

a first nozzle in fluid communication with a source of a photo resist solution, wherein the first nozzle is directed at the edge and sides of the wafer and is in fluid communication with the solvent source;

a second nozzle in fluid communication with the source of the photo resist solution, wherein the second nozzle is directed at the back of the wafer and is in fluid communication with the solvent source; and

a third nozzle in fluid communication with a solvent source containing a solvent

that includes diacetone alcohol;

solenoids for controlling flow through the first nozzle, the second nozzle and the third nozzle; and

a logic control unit coupled to the solenoids and [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the solvent on a wafer surface using the third nozzle;

spinning the wafer on the rotatable base until the solvent is distributed across the wafer surface;

dispensing photo resist solution on the wafer using the first nozzle and the second nozzle, including dispensing solvent through the first nozzle for edge bead removal, and dispensing solvent through the second nozzle on the back of the wafer to clean the wafer; and

spinning the wafer until the photo resist solution is distributed across the wafer surface.

37. (Twice Amended) An apparatus, comprising:

a rotatable base for holding a wafer;

a solvent dispense head in fluid communication with a source of a photo resist solution and a bulk solvent that includes diacetone alcohol, wherein between 70% and 90% of the bulk solvent is diacetone alcohol;

solenoids for controlling flow of the photo resist solution and the bulk solvent through the solvent dispense head; and

a logic control unit coupled to the solenoids and [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the bulk solvent on a wafer surface;

spinning the wafer on the rotatable base until the bulk solvent is distributed across the wafer surface;

dispensing the photo resist solution on the wafer; and

spinning the wafer until the photo resist solution is distributed across the wafer surface.

42. (Twice Amended) An apparatus, comprising:

- a rotatable base for holding a wafer;
- a solvent dispense head in fluid communication with a source of a photo resist solution and a bulk solvent that includes a mixture of diacetone alcohol and aliphatic ester [ester], wherein the mixture of diacetone alcohol and aliphatic ester includes a ratio that ranges between 10% ester and 90% alcohol to 30% ester and 70% alcohol;
- solenoids for controlling flow of the photo resist solution and the bulk solvent through the solvent dispense head; and

a logic control unit coupled to the solenoids and [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

- dispensing the bulk solvent on a wafer surface;
- spinning the wafer on the rotatable base until the bulk solvent is distributed across the wafer surface;
- dispensing the photo resist solution on the wafer; and
- spinning the wafer until the photo resist solution is distributed across the wafer surface.

44. (Twice Amended) A system for coating a wafer, comprising:

- a bulk solvent container, wherein a bulk solvent contained therein includes aliphatic ester and diacetone alcohol mixed in a ratio that ranges between 10% ester and 90% alcohol to 30% ester and 70% alcohol;
- a low pressure canister connected to the bulk solvent container; and
- a track coating unit connected to the low pressure canister, the track coating unit comprising:

- a solvent dispense head;
- a rotatable base for mounting the wafer; and
- a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

- dispensing the bulk solvent on a wafer surface;

spinning the wafer on the rotatable base until the bulk solvent is

distributed across the wafer surface;

dispensing photo resist solution on the wafer; and

spinning the wafer until the photo resist solution is distributed across the wafer surface.

48. (Twice Amended) A system for coating a wafer, comprising:

a bulk solvent container, wherein a bulk solvent contained therein includes diacetone alcohol and aliphatic ester mixed in a ratio that ranges between 10% ester and 90% alcohol to 30% ester and 70% alcohol;

a low pressure canister connected to the bulk solvent container; and

a track coating unit connected to the low pressure canister, the track coating unit comprising:

a solvent dispense head;

a rotatable base for mounting the wafer; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the bulk solvent on a wafer surface through a nozzle directed at a center of a wafer top surface;

spinning the wafer on the rotatable base until the bulk solvent is distributed across the wafer surface;

dispensing photo resist solution on the wafer; and

spinning the wafer until the photo resist solution is distributed across the wafer surface.

58. (Twice Amended) A system for coating a wafer, comprising:

a bulk solvent container, wherein a bulk solvent contained therein includes diacetone alcohol; and

a track coating unit coupled to the bulk solvent container, the track coating unit comprising:

a solvent dispense head, including:

a first nozzle in fluid communication with the source of the photo resist solution and directed at the top edge and sides of the wafer for edge bead removal; a second nozzle in fluid communication with the source of the photo resist solution and directed at the back of the wafer to clean the wafer; and a third nozzle in fluid communication with the solvent source directed at the center of the wafer to prewet the wafer;

a rotatable base for mounting the wafer; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the bulk solvent on a wafer surface using the third nozzle;

spinning the wafer on the rotatable base until the bulk solvent is distributed across the wafer surface;

dispensing photo resist solution on the wafer;

spinning the wafer until the photo resist solution is distributed across the wafer surface; and

dispensing the bulk solvent on the edge and sides of the wafer using the first nozzle and on the back of the wafer using the second nozzle for edge bead removal and cleanup after distributing the photo resist.

61. (Twice Amended) A system for coating a wafer, comprising:

a bulk solvent container, wherein a bulk solvent contained therein includes diacetone alcohol and aliphatic ester to form a mixture that has a ratio between 10% ester and 90% alcohol to 30% ester and 70% alcohol; and

a track coating unit coupled to the bulk solvent container, the track coating unit comprising:

a solvent dispense head;

a rotatable base for mounting the wafer; and

a logic control unit [adapted for executing] to execute a process to coat a wafer, wherein the process comprises:

dispensing the bulk solvent on a wafer surface;